

## Accounting and Auditing

### Currency Crisis Revisited: A Literature Review

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**Abstract:** This paper elaborates on currency crisis, focusing on the main factors causing the currency crisis. After a brief overview of the main factors driving currency crisis, the paper provides a literature review highlighting that the history of the global economy experienced a number of currency crisis whereas as relates to the triggers of the currency crisis there are three generations of models that have been used to explain currency crisis during the last four decades. Underscoring the role of the government in financial market, in particular the evolution of this role as a result of the recent global financial crisis and highlighting other factors that trigger such crisis, the paper concludes that the potential financial crisis can be addressed using early warning system, which consists of indicators proven to be beneficial in anticipation of the currency crisis, and using the advanced empirical models of currency crisis. In this context the paper reveals that currency crisis are associated with all factors impacting them such as inflation, real exchange rate, import growth, US interest rates, public debt/GDP, and current account/GDP – all with a slightly different time lag.

**Keywords:** currency crisis; triggers of the currency crisis; role of the government; financial market; serious financial crisis

**JEL Classification:** G01

#### 1. Introduction

The economic theory did not encounter any specific definition of the currency crisis that is acceptable as universal definition. However, when we think about currency crisis the first thing we recall is a massive escape of investors from the currency for which they fear will depreciate thus affecting that this devaluation to really happen at a more financial repressive dimension than usual. In such a situation currency loses its stability and confidence, and if there are no sufficient international reserves then this can result in serious financial crisis.

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## **2. Literature Review**

Global economic history is rich with many currency crisis events starting with debt crises of the Latin American countries during 1980 up to the latter with the debt crisis in the European Union. According to Krugman (2000), the currency crisis has affected emphatically on global economic developments and from this, the need to analyze what motivates currency crises and how should be the response of the government and what are the concrete consequences for the real economy remain as fundamental issues that require further exploration.

Certainly, at the theoretical and practical level, the most provocative question relates to the speculative attacks on the currency. Krugman (1979) had built a simple model according to which foreign exchange rate linked or pegged to another currency should be abandoned if the country's international currency reserves to which the domestic currency is linked are depleted. In fact, this paper of Krugman is based on the principle that the currency crisis are the result of 'weak fundamentals' of and economy respectively expansionary fiscal policies and monetary policies that have resulted in continuous loss of international reserves which it has forced governments to abandon parity rate. However, after this theory of Krugman there are other authors claiming that the authorities may abandon the exchange parity for other reasons too and not necessarily because of the collapse of international reserves. So, governments may be concerned about the negative consequences of the policies needed for maintaining parity (such as high interest rates) or other key economic variables (such as the employment rate).

Regarding the currency crisis triggers, Claessens and Ayhan Kose (2013) give a summary of the main factors. According to them there are three generation of models that are used to explain the currency crisis in last four decades. The authors highlight that the first generation of models dating from the collapse in the price of gold - an important nominal anchor in the wake of flexible exchange rates during 1970s - that has been used in cases of depreciation in Latin America. This generation of models mainly has to do with expectations and investor confidence regarding how central banks are able to provide fixed exchange rate as in many cases the lack of such assurance leads to the collapse of the currency.

The second generation models emphasize the importance of multiple equilibria and mainly relates to doubts that may arise about the willingness of the government to keep the exchange rate fixed, so these doubts can result in multiple equilibria and currency crisis. As summarized by Feridun (2004), in these models the policy is less mechanical, i.e. it is up to the government to decide on defending or not a pegged exchange rate by making a tradeoff between short-run macroeconomic flexibility and longer-term credibility.

The third generation models of currency crisis explore how rapid deterioration of balance sheet coupled with movements in the price of assets including exchange rate

may lead to currency crisis. Main inspiration for these models is found at Asian crises during 1990s, where we observe that large discrepancies in the balance sheet of the financial sector and corporates promote the emergence of currency crises. Thus, the third-generation models are classified into three different groups such as herd-behavior, contagion, and moral hazard. A more detailed elaboration of the currency crisis in Asian countries is also found in the paper of Jeanne (2000) where except the balance sheet discrepancies, uncontrolled capital flows, etc., the author highlights the effect of “putting in one basket” all investors from the region because of the individual countries (for example because of the Thailand then the whole region has been assessed as fragile).

When speaking about the causes and ways of forecasting the currency crisis, Pistelli (2006) in his work challenges the model known as early warning system developed by Kaminsky *et al* (1998) and provides his own distinct model known as aggregate index of the crisis to which he states, that, although with less individual indicators it provides better capacity both in terms of accuracy and in terms of its anticipation, and, above all this index is motivated in economic theory and as such represents a version of unified approach against the currency crisis - an approach that highlights the role of inconsistent macroeconomic policies as an explanation of the currency crisis, i. e. an approach that highlights the role of exchanges between decisions of policy makers as the main cause of the currency crisis.

By analyzing the crisis of 1993 in the European Monetary System, Obstfeld (1994) challenges the validity of the model of Krugman and finds that European economies that have access to the international capital market, for them the adequacy of international reserves is not a concern and it has not the same weight as it was in early 1970, because of new factors such as high interest rates and unemployment are factors that came into play to determine how different governments responded to the crisis in 1992-1993. Obstfeld (1994) further adds that when the government is able to borrow reserves from outside and perform alternative policies in times of crisis, the question arises as to which are the factors that determine the government's decision to abandon or to keep the exchange rate related to another currency.

Kaminsky *et al* (1998) have attempted to build a model called Early Warning System under which the indicators that have proven to benefit in anticipation of the currency crisis include indicators as the performance of international reserves, the real exchange rate, local credit, credit to the public sector and local inflation. Same authors underline the supportive role from other indicators such as trade balance, export performance, increase in money supply, real growth of GDP and the fiscal deficit.

In this context, Babecky *et al* (2012) in their paper which include 40 countries and a time series for the period 1970-2010, along with analysis of the banking crisis and currency crisis conclude that the launch of the currency crisis was typical preceded

by rising rates in the money market and the deterioration of the government balance and the collapse of central bank reserves. Inoue and Rossi (2005) have found that in addition to the traditional leading indicators (multipliers of the money, the terms of trade, etc.), the index of diffusion performs pretty well in real time and with a high probability of providing correct signals on currency crisis. They further conclude that economic variables such as output growth, balance of payments, interest rates and money growth have an impact on forecasting possible future crises. On the other side Pesenti and Tille (2000) conclude that traditional models of currency crisis suggest that weak and unstable economic policies are the main cause of exchange rate instability. Nevertheless, despite the progress with theoretical approach, the empirical models of currency crisis still remain poor in addressing potential financial crises in the future (Fratzscher, 2002).

Using signaling approach and a probit model, Budsayaplakorn *et al* (2010) have analyzed the currency crisis in the case of Southeast Asian countries. Authors concluded that three indicators that are useful in predicting crises include international reserves, stock market indexes and gross domestic product (GDP). Also, these authors point out that while signaling approach gives positive results in providing an effective warning system, modeled Probit approach encounters difficulties with the case of measuring the continuity of individual indicators. On the other hand, they concluded that a significant part of probabilities of crisis cannot be explained by economic fundamentals. This part may be driven by non-economic purposes such as self-fulfillment of expectation or institutional structures. And this is in accordance with Shimpalee and Breuer (2006), which highlighted that bad institutions are associated with contractions of the large-scale production that corruption *de facto* a fixed exchange rate regime, government's poor stability, poor rule of law and orders increases the probability of currency crises. However the results of these authors shows that reserve imbalances, speculative pressures, and problems in the real sector have contributed considerably to Asian crisis. Though, they also underline that the government policies, macroeconomic environment and investors' panic - all play a role in causing the crisis. At individual country level, Feridun (2004) has built a probit model on Brazilian real crisis of 1999, where using 20 monthly macroeconomic, political, and financial sector indicators he proves the impact of all factors (of course with slightly different time lags) such as inflation, real exchange rate, import growth, US interest rates, public debt/GDP, and current account/GDP., and he concludes that the Brazilian crisis of 1999 was caused by the suspected macroeconomic fundamentals.

On the other side, at the level of individual countries we face heterogeneous findings that prove that there is not a model that can be used to forecast the currency crisis across all states. The countries' specifics do matter. Thus, in the case of Albania, Mančka (2012) in her work, analyzing the credit risk of the banking system shows that the instability of the national currency in relation to the euro and the US dollar

and the global economic and financial have had a significant impact on the credit risks of the Albanian banking credit portfolio.

This credit risk is influenced by the instability of the exchange rate of LEK against Euro where under valuation of the national currency and the euro appreciation has adversely affected the borrowers that have had their loans in euro. As usual, Albanian borrowers have preferred more the alternative of loans in euro because of lower interest rates and confidence in the stability of the euro. As a result of this the possibility for non-payment of loans has increased and consequently the number of problem loans has increased too. In conclusion, the author notes that the Albanian banking system is more exposed to the instability of the national currency against euro and the US dollar because it directly affects the quality of the loan portfolio issued by banks and she suggests that banks should use more policies of balanced crediting, aiming to increase the credit in domestic currency (LEK).

On the other hand, in the case of Turkey, Karabulut, G. *et al* (2010) have attempted to predict the determinants of the currency crisis in Turkey using PROBIT model, which also used the model of Budsayaplakorn *et al* to Asian countries. Their results suggest that short-term debt in relation to GDP, the real exchange rate, the interest rate on deposits, foreign reserves to imports, and the variables loans / deposits as independent variables are all important to explain currency crisis in Turkey. The results show that an appreciation of the domestic currency increases the probability of a crisis. Authors concluded that an effective policy against the currency crisis should be increasing the ratio of international reserves and optimal growth of loans to deposits ratio.

Dietrich, D. *et al* (2011), show that during the great recession in Central and Eastern Europe the banking crisis and currency crisis appeared simultaneously. In this context, authors point out the influence of factors such as subsidiaries of financial institutions, then cross-border financial services, the proportion of foreign currency loans and the type of exchange rate flexible or fixed. Based on these criteria, they demonstrate that the model of the crisis in the Baltic countries differs significantly from the currency crisis in Poland and Czech Republic. So, the Baltic countries were able to successfully to defend a fixed exchange regime rate (number of months of the crisis was low), but the loss of confidence (measured in terms of price CDS) was high. At other side, the currencies of Poland and the Czech Republic was heavily devalued (the currency crisis has lasted longer), but the loss of confidence in the ability of these countries to repay public debt was lower. These authors conclude that one reason for the unequal development can be in different structures of the financial systems of these countries.

Alina, C. *et al* (2012) point out that currency crises in emerging markets have been accompanied by banking crises, with a focus on the market for bank credit growth after major devaluation. This study explains how the presence of imperfect

competition and bank liabilities against dollar form the real effects of the twin crises. Then the same authors elaborate a model of twin crises under the imperfect competition in the banking and the changes in the market structure that occur after the crisis. Their analysis reveals that the currency devaluations generate harsher twin crises in economies with less competitive banking sectors. These authors point out that crisis are not linked to the non-liquidation of the borrower's forthei loans. Otherwise, the roots of the crisis can be traced through two other defects, the imperfect competition in the banking industry and the currency mismatch in the own bank balances. With this goal in mind, the authors build a DSGE model for the introduction of currency mismatches whose results shows that devaluations of the currency are an outcome of deeper crisis in the economy where producers rely more on bank loans. Findings reveal that devaluations of the currency generate the most serious twin crisis in the economies with less competitive banking sectors. Having found that, authors emphasize the need for regulation that explicitly focuses on market structure of the banking sector. Indeed, policymakers can promote capital markets thus lower producers' dependence on bank loans. Finally the authors conclude that their model can be used to analyze the role of the effects of devaluations on regulations when imposing banks to restrictions on their foreign exchange positions.

Furceri *et al* (2012) empirically examines the relationship between capital flows and the probability of banking, currency and balance of payments crises in the future. Using the data on developed economies and developing countries (1970-2007), the authors find that large capital inflows increase the possibility for banking crisis with a probability of occurrence within 4-5%. The results mean a doubling of the probability in the near future. As might be expected, the effect is greater for sudden stops where the probability of occurrence of a sudden stop growing by 22% in the two years following the end of an event to the large influx of capital. Authors in particular conclude that large inflows in capital which are debt capital, stimulate significantly the increase in the probability of banking crises, currency and balance of payments, while capital inflows from portfolio investments or foreign direct investment have negligible effect. According to them, other factors that affect the appearance of these crises are inflation, short-term interest rates, and foreign reserves, banking concentration, trade openness, net foreign assets and foreign debt.

Bruinshoofd. A, *et al* (2010) assess whether the role of trade, financial links and banking sector fragilities help explain the transmission of the currency crisis. From their findings it appears that while the role of trade and financial ties is strong in time, the independent role of the fragility of the banking sector is very weak and unstable in crisis events. The authors point out that the characterization of the fragility of the banking sector by common factor analysis leads to results that measurement is not conclusive. So the measurement of fragility of the banking sector in the macroeconomic level cannot be accurate, and they call for the use of micro

data, especially the NPLs (non-performing loans) and market estimates based on bank fragility. The authors then investigate the role of the fragility of banking sector in the transmission of crises to see if this fragility can apply to events (episodes) of the crises in the future. At the end, they point out that it is difficult to draw the observed banking fragility, the channels of transmission from one crisis to another and therefore they conclude that during future crises events the economies characterized by fragility of the banking sector are more prone to transmission of crises.

As relates to the response of the governments of different countries regarding the currency crisis, it is worth mentioned frequent analysis being done to the phenomenon known as "the currency war". Hence, Darvas and Pisani-Ferry (2010) analyzing from an European perspective the possible threat posed by the 'currency war' claim that 'currency war' is manifested through inflexible fixing of undervalued currencies, then through the efforts of countries with fluctuation regime of exchange rates to resist currency appreciation and by quantitative easing which mainly performed by Fed, the Bank of England and that of Japan. When it comes to the Eurozone, the same authors suggest that Europe remains primarily concerned with the issue of inflexible fixing of undervalued currencies, a concern that also relates to the recommended debate on the international monetary system.

Regarding the repercussions of the currency crisis, Hale and Arteta (2007) analyzing the data at the level of enterprises they analyze the effect of the crisis of foreign currency credit to the private sector in emerging markets. The authors find that foreign credit to the private sector falls by 25 percent in the first year after the currency crisis and that this reduction is particularly continuous, substantial and high in the first five months after the currency crisis. The authors also report that both as the demand as well as the supply of credit get a substantial hit after the currency crisis and thesis consistent with the view that the currency crisis leads into balance sheet effects which result in reduction of credit and because the balance sheet difficulties take time to resolve then the reduction of credit supply is continuous.

### **3. Conclusion**

The reviewed literature shows that there is no 'one - size fits all' model to explain currency crisis as their intensity depends a lot on countries' individual specifics. However, most of the empirical evidence show that the same set of factors (inflation, real exchange rate, import growth, US interest rates, public debt/GDP, and current account/GDP) are found to impact every currency crisis so far.

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